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Docket 81225PAL  
Customer No. 01333

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**  
**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Application of

Nathan D. Cahill, et al

LOCATION OF EXTENDED  
LINEAR DEFECTS

Serial No. 09/635,178

Filed August 09, 2000

Group Art Unit: 2623

Examiner: Virginia M. Kibler

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*Robin G. DePoint*

Robin G. DePoint

*January 14, 2005*

Date

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Sir:

**APPEAL BRIEF TRANSMITTAL**

Enclosed herewith in triplicate is Appellants' Appeal Brief for the above-identified application.

The Commissioner is hereby authorized to charge the Appeal Brief filing fee to Eastman Kodak Company Deposit Account 05-0225. A duplicate copy of this letter is enclosed.

Respectfully submitted,

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If the Examiner is unable to reach the Applicant(s) Attorney at the telephone number provided, the Examiner is requested to communicate with Eastman Kodak Company Patent Operations at (585) 477-4656.

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**APPEAL BRIEF PURSUANT TO 37 C.F.R. 1.192**



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### **APPELLANT'S BRIEF ON APPEAL**

Appellants hereby appeal to the Board of Patent Appeals and Interferences from the Examiner's Final Rejection of claims which was contained in the Office Action mailed .

A timely Notice of Appeal was filed September 14, 2004.

### **Real Party In Interest**

As indicated above in the caption of the Brief, Eastman Kodak Company is the real party in interest.

### **Related Appeals And Interferences**

No appeals or interferences are known which will directly affect or be directly affected by or have bearing on the Board's decision in the pending appeal.

### **Status Of The Claims**

Appendix I provides a clean, double spaced copy of the claims on appeal.

### **Status Of Amendments**

The Amendment filed August 19, 2004 was entered in a telephonic interview of November 15, 2004 and confirmed in the Interview Summary from the Patent Office dated November 16, 2004.

### **Summary of Claimed Subject Matter**

Invention relates to a method of locating a linear defect in a photographic element (page 5 lines 7-13) and then employing location the defect in processing a digital image derived from the photographic element (page 6 lines 22-24). There is a need to locate defects in a photographic image, particularly linear defects when the image is scanned (page 3 lines 4-5). If such the defects can be located during scanning then when the electronic data is utilized to produce another image the data derived from the defective image region can have applied thereto using appropriate reconstruction techniques to recover the data to an order to form a

desirable image when a print is formed from the stored data (page 6 lines 22-29 and page 2 lines 1-7).

Independent claim 1 recites a method of locating a linear defect on a photographic element, the element having a useful imaging width and the defect aligned with length of the element, comprising the steps of:

a) exposing a region of the element to create a latent image which is substantially uniform across the useful imaging width of the element (page 6, lines 5-7);

b) processing the latent image to produce a density signal (page 6 lines 6-7);

c) sampling the density signal with a photometric device (page 6 lines 7-9); and

d) analyzing the sampled density data in the widthwise direction to determine if there are regions where uniformity differs from that of the uniform exposure, if such differences are found they are linear defects (page 6 lines 10-17) further comprising the step of employing the location of the defect in processing a digital image derived from the photographic element (page 6 lines 22-24).

### **Issues For Review By The Board**

The following issues are presented for review by the Board of Patent Appeals and Interferences:

Claim 8 stands objected to because of an informality.

Claims 1,2, 10, and 11 stand rejected under 35 USC 103 (a) as being unpatentable over Bryant (5,113, 081) in view of Bilhorn et al. (5,696,521).

Claims 3 and 5-8 stand rejected under 35 USC 103 (a) as unpatentable over Bryant (5,113,081,) and Bilhorn et al. (5, 696,591) and Reem et al. (5,667,994).

Claims 12-15 stand rejected under 35 USC 103 (a) as being unpatentable over Bryant (5,113,0 81) and Bilhorn et al. (5,696,591) in view of Kobayashi et al. (5,430,522).

Claim 4 stands rejected under 35 USC 103 as being untenable over Bryant (5,113,081) and Bilhorn et al. (5, 696,521) in view of Prigent (5,641,971).

Claim 9 (now incorporated into claim 1) stands rejected under 35 USC 103 as the unpatentable over Bryant (5,113,081) and Bilhorn et al. (5, 696,591) in view of Factor (5, 745,217).

### **Arguments**

#### **Informality objection to claim 8**

In paragraph 1 of the Final Office Action claim 8 is objected to because of the following informality. The Examiner states that the "Dmin" should be identified. It is assumed that the Examiner desires a particular number for Dmin to be inserted in claim 8. However, Dmin varies with each individual film. It is affected by time in storage before and after imaging, temperature and other factors. Dmin is the background development of silver not imaged and for the invention it is a desirable that the exposure produce a developed image 1.5 above the Dmin level. The particular Dmin level of a photographic element utilized in the invention is not important. The important (claimed) thing is that the developed image be 1.5 above the Dmin level. Therefore, it is respectfully requested that this objection be reversed.

#### **Rejection of claims 1, 2, 10 and 11 under 35 USC 103**

In paragraph 3 of Final Rejection, claims 1, 2, 10, and 11 stand rejected under 35 USC 103 as being unpatentable over Bryant (081) in view of Bilhorn et al. (591). The Examiner states the rejection as follows:

“Claims 1, 2, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bryant (5,113,081) in view of Bilhorn et al. (5,696,591).

Regarding claim 1, Bryant discloses exposing a region of the element to create a latent image which is substantially uniform across the useful imaging width of the element (Col. 3, lines 13-

28; Figure 3), processing the latent image to produce a density signal (Col. 3, lines 2946; Figure 6), sampling the density signal with a photometric device (Col. 3, lines 47-54; Figures 6-8), and analyzing the sampled data to determine if there are regions where uniformity differs from that of the uniform exposure, if such differences are found they are linear defects (Col. 1, lines 34-49; Col. 4, lines 9-21). Bryant does not disclose analyzing the sampled density data in the widthwise direction. However, choosing a scanning direction is a well known methodology routinely implemented in the art depending on design choice. Bilhorn et al. ("Bilhorn") teaches that it is known to analyze the sampled data in the widthwise direction to determine if there are regions where uniformity differs to locate linear defects on a photographic element (Figure 1; Col. 1, lines 13-25; Col. 2, lines 59-67, Col. 3, lines 1-27). Bryant and Bilhorn are combinable because they are from the same field of endeavor of detecting defects in film. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have modified the analysis of the sampled density data disclosed by Bryant to include analyzing the sampled data in the widthwise direction. The motivation for doing so would have been because it is well known in the art and provides for the inspection of defects in a lateral direction across the width (Col. 1, lines 13-25).

Regarding claim 2, Bryant discloses exposing a plurality of regions (Figure 3) and analyzing the sampled data in each region, whereby the likelihood of locating linear defects is enhanced (Figure 7).

Regarding claims 10, Bryant discloses the photographic element as a film strip (Col. 2, lines 63-66).

Regarding claims 11, Bryant discloses the processing step employs a standard photographic process (Col. 3, lines 41-46)."

This rejection is respectfully urged as in error and reversal is requested for the following reasons.

Bryant is not performing a similar inspection system to that of the claimed invention. Bryant is looking for repetitive anomalies that could cause flickering. He is not looking for widthwise variation but looking at variation in exposure density along the length of the film. In contrast, the instantly claimed invention analyzes in the widthwise direction for uniformity of exposure. By analyzing in the widthwise direction linear defects can be located as points of nonuniformity. In contrast, Bryant is analyzing for uniformity differences between sections of the film not portions in the widthwise direction. Bilhorn et al. discloses a process of optical inspection to detect flaws in moving Web. The system utilizes infrared for inspection of the film prior to exposure. The system would not be able to detect streaks that show up after development. Bilhorn et al. is a system set up for manufacturing rather than use with developed film. The instant system creates a latent image and processes the latent image. The instant system then utilizes the information regarding location of the defects in processing digital images formed from scanning the photographic element. There is no disclosure or suggestion in either reference of utilization of information in forming of a digital image. Information derived in both Bryant and Bilhorn et al. systems allows discarding of certain sections of the film rather than making use of the film. The invention system that would control for the defect and form an image from digital information incorporating the information concerning defects. This invention is several steps from the Bilhorn et al. and Bryant processes which involve discarding portions of the film where images would not be satisfactory. In contrast the instant invention scans imperfect images and then utilizing the knowledge of the uniformity differences allows digital images to be formed that are corrected for the defects in the original image. There is no disclosure suggestion in Bryant or Bilhorn et al. to do this and therefore reversal is respectfully requested.



**Rejection of claims 3 and 5-8 under 35 USC 103**

In paragraph 4 of the Final Rejection claims 3 and 5-8 stand rejected under 35 USC 103 as being unpatentable over Bryant (081) and Bilhorn (591) as applied to claim one and further in view of Reem et al. (944). The Examiner states the rejection as follows:

“Claims 3 and 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bryant (5,113,081) and Bilhorn et al. (5,696,591) as applied to claim 1 above, and further in view of Reem et al. (5,667,944).

Regarding claim 3, Bryant does not appear to recognize exposing a multiplicity of exposure levels varying along the length of the element. However, Reem et al. (“Reem”) teaches that it is known to form a multiplicity of exposure levels on a photographic element (Col. 6, lines 23-27). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the exposure disclosed by Bryant and Bilhorn to include exposing a multiplicity of exposure levels as taught by Reem because the variations alter the amount of density formed for different levels of exposure and simplifies defect detection (Col. 3, lines 12-20).

Regarding claims 5-7, Bryant does not appear to recognize a specified exposure level. However, Reem teaches that it is known to expose a region of a negative photographic film having a plurality of layers to create a latent image wherein the exposure is high enough to produce a latent image that is developable in all layers of the film and the exposure is less than the exposure at which further increase in exposure no longer results in increased density (Col. 7, lines 27-37), thereby being low enough to produce a latent image that upon development allows detection of any additional density due to a defect. Therefore, it would have been obvious to one of ordinary

skill in the art at the time of the invention to have modified the exposure level disclosed by Bryant and Bilhorn to include the exposure range taught by Reem because it is a conventional methodology routinely implemented in the art to adjust the level of exposure (Col. 6, lines 34-37).

Regarding claim 8, the arguments analogous to those presented above for claim 7 is applicable to claim 8. While Reem does not appear to expressly state the exposure is sufficient to produce a developed image that is 1.5 above  $D_{min}$ , it would have been an obvious matter of design choice to have modified the exposure range disclosed by Reem to specify a particular value with the disclosed range.”

This rejection is respectfully traversed and reversal is requested. As urged above with respect to the rejection of claim 1, Bryant and Bilhorn et al. do not teach or suggest a combination that leads to the instant invention where crossways defect information is utilized in processing a digital image derived from the photographic element. Reem et al. is not detecting defects in film but rather as measuring gamma in order to provide gamma correction to photographic images produced from the filmstrip. There is no combination with Reem that would overcome the failure of Bryant and Bilhorn to disclose the claimed invention. None of these references contain anything that would suggest analyzing sample density in the widthwise direction and employing location of the defect in processing a digital image derived from the photographic element. Therefore, it is respectfully requested that the rejection of claims 3 and 5-8 be reversed.

#### **Rejection of claims 12-15 under 35 USC 103.**

In paragraph 5 of the Final Rejection claims 12-15 stand rejected under 35 USC 103 as being unpatentable over Bryant and Bilhorn et al. as applied to claim 1 and further in view of Kobayashi et al. (522). The Examiner states the rejection as follows:

Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bryant (5,113,081) and Bilhorn et al. (5,696,591) as applied to claim 1 above, and further in view of Kobayashi et al. (5,430,522).

Regarding claims 12-15, Bryant does not appear to recognize employing an alternate photographic process. However, Kobayashi et al. ("Kobayashi") teaches that it is known to process a latent image using an alternative photographic process including employing a dry photographic process using pressure sensitive heat developable film (Col. 1, lines 22-36 and lines 41-50), thereby containing thermal developable chemistry and pressure developable chemistry. Therefore, it would have been obvious to have modified the photographic process disclosed by Bryant and Bilhorn to an alternative photographic process as taught by Kobayashi because the selection of type of photographic process is well known and would be within the level of ordinary skill in the art at the time of the invention."

This rejection is respectfully traversed. As urged above, Bryant and Bilhorn do not suggest the system of the invention. Kobayashi et al., as pointed out by the Examiner, does disclose alternate processing and image forming methods. However there is no disclosure suggestion that would overcome the deficiencies of the rejection of Bryant and Bilhorn et al. in claim 1, where the combination fails to disclose widthwise detection of defects in exposed film or the employing of the location of a defect in processing a digital image derived from the flawed photographic element. Therefore, it is respectfully requested that this rejection be reversed.

#### **Rejection of claim 4 under 35 USC 103**

In paragraph 6 of the Final Rejection claim 4 stands rejected under 35 USC 103 as being unpatentable over Bryant and Bilhorn as applied to claim one and further in view of Prigent (971). The Examiner states the rejection as follows:

“Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bryant (5,113,081) and Bilhorn et al. (5,696,591) as applied to claim I above, and further in view of Prigent (5,641,971).

Regarding claim 4, Bryant does not appear to recognize averaging the samples of the density signal. However, Prigent teaches that it is known to average the samples of a density signal (Col. 4, lines 51-58). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the sampling of the density signal disclosed by Bryant and Bilhorn to include averaging as taught by Prigent because the averaging compensates for variations of densities of the film over its length (Col. 4, lines 51-58).”

This rejection is respectfully traversed. Prigent measures variations along the length of a film and averages the variations together to adjust for thickness variations of the film. Prigent does this in order to determine the level of defects that are present during manufacturing, in order to control the manufacturing process. While Prigent teaches averaging, there is no disclosure or suggestion which would be overcome the above set forth deficiencies in the claim 1 rejection over Bryant and Bilhorn et al. Prigent does not relate to a process for measuring defects in a developed image and then utilizing this information in processing a digital image derived from the photographic element. Prigent relates to manufacturing process and nowhere suggests utilization of a developed image for any purpose much less for that of the invention or to modify Bryant and Bilhorn. Therefore, it is respectfully requested that this rejection be reversed.

#### **Rejection of claim 9 under 35 USC 103**

In paragraph 7 of the Final Rejection claim 9 stands rejected under 35 USC 103 as being unpatentable over Bryant and Bilhorn et al. as applied to claim

one and further in view of Factor (217). The Examiner states the rejection as follows:

“Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bryant (5,113,081) and Bilhorn et al. (5,696,591) as applied to claim 1 above and further in view of Factor (5,745,217).

Regarding claim 9, Bryant does not appear to recognize employing the location of the defect in processing. However, Factor teaches that it is known to employ the location of the defect on a photographic element in processing (Col. 1, lines 27-35). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the locating defects disclosed by Bryant and Bilhorn to include employing the location in processing as taught by Factor because it can be used to avoid exposure of images in the area containing the defects (Col. 1, lines 31-35).”

This rejection is respectfully traversed. It is noted that claim 9 has been incorporated into claim 1. Bryant and Bilhorn are discussed above. Factor discloses a system of raw material sensing in order to discard material without exposure. Scanning takes place prior to recording an image and then an image is not recorded on a photographic element found to be defective during the raw material sensing. The Factor reference does not expose an image defect location. Claim 9, now inserted in claim 1, sets forth employing location of the defect in processing a digital image derived from the photographic element. The invention takes a developed image and corrects it to produce a corrected digital image. This is not disclosed or suggested by Bryant or Bilhorn. Further, Factor does not disclose or suggest this as Factor is only concerned with detection of defects in unprocessed film in order to not carry out exposures in defective areas. Therefore, there is no disclosure or suggestion in Factor that would lead one to modify Bilhorn and Bryant to reach the invention. Therefore, it is respectfully requested that this rejection be reversed.

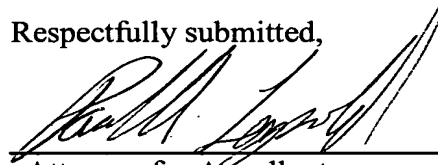
### **Summary**

The primary references to Bryant and Bilhorn et al. both relate to inspection systems for film. The instant invention is an entirely different category of invention in that it is a developed image, locates defects, and then it utilizes the location of the defect in processing a digital image derived from scanning the developed image. The correction of a scanned developed photographic image is nowhere contemplated by any of the references utilized in these rejections. Therefore reversal is respectfully requested.

### **Conclusion**

For the above reasons, Appellants respectfully request that the Board of Patent Appeals and Interferences reverse the rejection by the Examiner and mandate the allowance of Claims 1-15.

Respectfully submitted,



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## **Appendix I - Claims on Appeal**

1. A method of locating a linear defect on a photographic element, the element having a useful imaging width and the defect aligned with length of the element, comprising the steps of:

a) exposing a region of the element to create a latent image which is substantially uniform across the useful imaging width of the element;

b) processing the latent image to produce a density signal;

c) sampling the density signal with a photometric device; and

d) analyzing the sampled density data in the widthwise direction to determine if there are regions where uniformity differs from that of the uniform exposure, if such differences are found they are linear defects further comprising the step of employing the location of the defect in processing a digital image derived from the photographic element.

2. The method in claim 1, wherein the exposing step comprises exposing a plurality of regions, and analyzing the sampled density data in each region, whereby the likelihood of locating linear defects is enhanced.

3. The method in claim 1, wherein the exposing step comprises exposing a multiplicity of exposure levels varying along the length of the element, whereby a linear defect may be localized in exposure.

4. The method in claim 1, wherein the analyzing step comprises averaging of samples aligned with the length of the element, whereby the significance of a nonuniformity is enhanced.

5. The method claimed in claim 1, wherein the photographic element is a negative photographic film having a plurality of layers and the exposure is high enough to produce a latent image that is developable in all layers of the film.

6. The method claimed in claim 1, wherein the photographic element is a negative photographic film and the exposure is low enough to produce a latent image that upon development allows detection of any additional density due to a defect.

7. The method claimed in claim 1, wherein the photographic element is a negative photographic film having a plurality of layers and the exposure is high enough to produce a latent image that is developable in all layers of the film and the exposure is low enough to produce a latent image that upon development allows detection of any additional density due to a defect.

8. The method claimed in claim 7, wherein the exposure is sufficient to produce a developed image that is 1.5 above  $D_{min}$ .



10. The method claimed in claim 1, wherein the photographic element is a film strip.

11. The method claimed in claim 1, wherein the processing step employs a standard photographic process.

12. The method claimed in claim 1, wherein the processing step employs an alternate photographic process.

13. The method claimed in claim 1, wherein the processing step employs a dry photographic process.

14. The method claimed in claim 13, wherein the dry photographic process includes thermal treatment.

15. The method claimed in claim 13, wherein the dry photographic process includes high pressure treatment.